REMARKS

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks. The foregoing amendments do not add new matter and are fully supported by the originally filed claims, page 8, lines 20-24, page 15, lines 8-20, page 16, lines 13-23, page 17, lines1-6, page 18, lines 10-15.

Objection to the Specification

At page 2 of the Office Action, the disclosure as a whole was objected to because it allegedly contains an embedded hyperlink and/or other form of browser-executable code. Applicant respectfully requests reconsideration of this objection.

The specification has been amended to remove portions of the embedded hyperlink in each instance, so that it is no longer browser-executable.

For at least the foregoing reasons, Applicant respectfully submits that the disclosure as a whole is not objectionable, and therefore respectfully requests withdrawal of the objection thereto.

Rejection under 35 U.S.C. § 112, second paragraph

In the Office Action, beginning at page 2, Claims 1-10 were rejected under 35 U.S.C. § 112, second paragraph, as reciting subject matters that allegedly are indefinite, more specifically in the recitation of "an ArcA protein does not normally function", and "wherein the ArcA protein that normally functions is a protein". Applicant respectfully requests reconsideration of this rejection.

The claims have been amended to recite "the production of ArcA protein is reduced or eliminated" and have further clarified the antecedent phrases. This amendment is based on the description at page 15, lines 16-18 of the specification. Applicants assert that the claims are definite and clear in its meaning and intent.

For at least the foregoing reasons, Applicant respectfully submits that Claims 1-10 fully comply with 35 U.S.C. § 112, second paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

In the Office Action, beginning at page 3, Claim 6 was further rejected under 35

U.S.C. § 112, second paragraph, as reciting subject matters that allegedly are indefinite. Applicant respectfully requests reconsideration of this rejection. Claim 6 was further rejected as being allegedly vague and indefinite in the recitation of "DNA hybridizable with the nucleotide sequence of nucleotide numbers 101 to 817 of SEQ ID NO: 31...". Claim 6 has been amended by deletion of the allegedly indefinite phrases and insertion of the specific stringent conditions, and therefore, applicants assert this claim is definite and clear in its intent and meaning.

For at least the foregoing reasons, Applicant respectfully submits that Claims 1-10 fully comply with 35 U.S.C. § 112, second paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

Rejection under 35 U.S.C. § 112, first paragraph

In the Office Action, beginning at page 4, Claims 1-6 and 8-10 were rejected under 35 U.S.C. § 112, first paragraph, as reciting subject matters that allegedly fail to comply with the written description requirement. Applicant respectfully requests reconsideration of this rejection.

Attached as Exhibit A are alignments of ArcA protein *E. coli* with that of the other γ-proteobacteriums. This data clearly demonstrates that the amino acid sequence of ArcA protein is highly conserved among γ-proteobacteriums. As such, a person skilled in the art can obtain the homologous arcA gene from γ-proteobacterium other than *E. coli* and *Pantoea ananatis* based on the disclosed nucleotide sequence of arcA gene of *E. coli* (SEQ ID NO: 31) or *Pantoea ananatis* (SEQ ID NO:19), and use the obtained arcA gene to disrupt a chromosomal arcA gene in each γ-proteobacterium. Applicants assert the the description of SEQ ID NO:31 and SEQ ID NO:19 are sufficient to describe the genus of ArcA genes/proteins from other γ-proteobacterium, as one of skill in the art would be able to ascertain other species and their respective ArcA gene/protein sequences. Therefore, these two exemplified and described sequences constitute a representative number of species since the relevant structural properties are easily ascertained and determined due to the highly homologous nature of the ArcA genes/proteins among γ-proteobacterium.

Similarly, applicants assert that the description of *E.coli* and *Pantoea ananatis*

which have been modified so that an ArcA protein does not function normally are sufficient to adequately describe the genus of γ-proteobacterium encompassed by the claims. Specifically, as shown in the attached Exhibit A, the common feature of this genus of bacteria is their structural commonality of having a disrupted ArcA gene/protein. This common structural feature is present in any species of the genus, and is therefore sufficient to demonstrate possession of the genus of γ-proteobacterium.

For at least the foregoing reasons, Applicant respectfully submits that Claims 1-6 and 8-10 fully comply with 35 U.S.C. § 112, first paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

Rejection under 35 U.S.C. § 102(b)

In the Office Action, beginning at page 6, Claims 1-9 were rejected under 35 U.S.C. § 102(b), as reciting subject matters that allegedly are anticipated by Cotter et al. Applicant respectfully requests reconsideration of this rejection.

Claim 1 relates to a γ-proteobacterium including, *inter alia*, "a target substance synthesized via TCA cycle" and "as compared to a wild-type γ-proteobacterium". Support for the subject matter in claim 1 can be found, e.g., at page 8, lines 23-24, and page 17, lines 4-6. Although Cotter et al. discloses arcA gene-disrupted strains, the strains described by Cotter et al. do not have an ability to produce a target substance synthesized via the tricarboxylic acid cycle in an amount more than an amount of the substance produced by a wild-type bacterium. In contrast, the strains used in the Examples of the present specification are strains modified to have an ability to produce a target substance synthesized via the tricarboxylic acid cycle. That is, the WC196 strain disclosed in Example 2 is an L-lysine-producing mutant strain as described in page 9, lines 23-24 of the specification, and the MG1655Δ sucA strain in which sucA gene is disrupted is an L-glutamic acid-producing strain, as described in page 11, lines 5-9 of the specification.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1-9 are not anticipated by Cotter et al., are therefore not unpatentable under 35 U.S.C. § 102(b), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102(b).

In the Office Action, beginning at page 7, Claims 1-10 were rejected under 35 U.S.C. § 102(b), as reciting subject matters that allegedly are anticipated by Iuchi et al. Applicant respectfully requests reconsideration of this rejection.

As stated above, the claims recite "a target substance synthesized via TCA cycle" and "as compared to a wild-type γ-proteobacterium". Although Iuchi et al. discloses arcA gene-disrupted strains, the strains disclosed by Iuchi et al. do not have an ability to produce a target substance synthesized via TCA cycle in an amount more than an amount of the substance produced by a wild-type bacterium. In contrast, the strains used in the Examples of the present specification are strains modified to have an ability to produce a target substance synthesized via TCA cycle. That is, the WC196 strain disclosed in Example 2 is an L-lysine-producing mutant strain as described in page 9, lines 23-24 of the English specification, and the MG1655Δ sucA strain in which sucA gene is disrupted is an L-glutamic acid-producing strain, as described in page 11, lines 5-9 of the English specification.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1-10 are not anticipated by Iuchi et al., are therefore not unpatentable under 35 U.S.C. § 102(b), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102(b).

In the Office Action, beginning at page 6, Claims 1-10 were rejected under 35 U.S.C. § 102(b), as reciting subject matters that allegedly are anticipated by Nystrom et al. Applicant respectfully requests reconsideration of this rejection.

Similar to our arguments presented above, the claims recite "a target substance synthesized via TCA cycle" and "as compared to a wild-type γ-proteobacterium". Although Nystrom et al. discloses arcA gene-disrupted strains, Nystrom et al. does not disclose strains which have have an ability to produce a target substance synthesized via TCA cycle in an amount more than an amount of the substance produced by a wild-type bacterium. In contrast, the strains used in the Examples of the present specification are strains modified to have an ability to produce a target substance synthesized via TCA cycle. That is, the WC196 strain disclosed in Example 2 is an L-lysine-producing mutant

strain as described in page 9, lines 23-24 of the English specification, and the MG1655Δ sucA strain in which sucA gene is disrupted is an L-glutamic acid-producing strain, as described in page 11, lines 5-9 of the English specification.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1-10 are not anticipated by Nystrom et al., are therefore not unpatentable under 35 U.S.C. § 102(b), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102(b).

In the Office Action, beginning at page 8, Claim 2 was rejected under 35 U.S.C. § 102(b), as reciting subject matters that allegedly are anticipated by Sugimoto et al.. Applicants note that the patent number listed on page 8 of the office action is incorrect. The correct patent number, which is listed correctly on the PTO-892, is 5,919,694. Applicant respectfully requests reconsideration of this rejection.

Claim 2 has been amended to limit the number of amino acid substitutions, deletions or insertions to "up to 10". Therefore, this limitation clearly removes the disclosure of Sugimoto et al. as prior art.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claim 2 is not anticipated by Sugimoto et al., is therefore not unpatentable under 35 U.S.C. § 102(b), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102(b).

Rejection under 35 U.S.C. § 102(e)

In the Office Action, beginning at page 9, Claims 1-10 were rejected under 35 U.S.C. § 102(e), as reciting subject matters that allegedly are anticipated by Cervin et al. Applicant respectfully requests reconsideration of this rejection.

Applicants hereby submit a translation of the priority documents and a verification by the translator, as Exhibit B. These documents are sufficient to effectively remove Cervin et al. as prior art since the priority date of July 12, 2002 can be relied upon by applicants, because the priority documents provide support for the claimed subject matter.

For at least the foregoing reasons, Applicant respectfully submits that the subject

matters of Claims 1-10 are not anticipated by Cervin et al., because Cervin et al. is not prior art to the claimed subject matter and therefore the claims are not unpatentable under 35 U.S.C. § 102(e), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102(e).

Conclusion

For at least the foregoing reasons, Applicant respectfully submits that the present patent application is in condition for allowance. An early indication of the allowability of the present patent application is therefore respectfully solicited.

If Examiner Vogel believes that a telephone conference with the undersigned would expedite passage of the present patent application to issue, she is invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the undersigned respectfully authorizes that our deposit account 50-2821 be charged any required fees.

Respectfully submitted,

By: _____

Shelly Guest Cermak
Registration No. 39,571

U.S. P.T.O. Customer No. 38108
Cermak & Kenealy, LLP
515 E. Braddock Road, Suite B
Alexandria, VA 22314
703.778.6608

Date: September 12, 2005